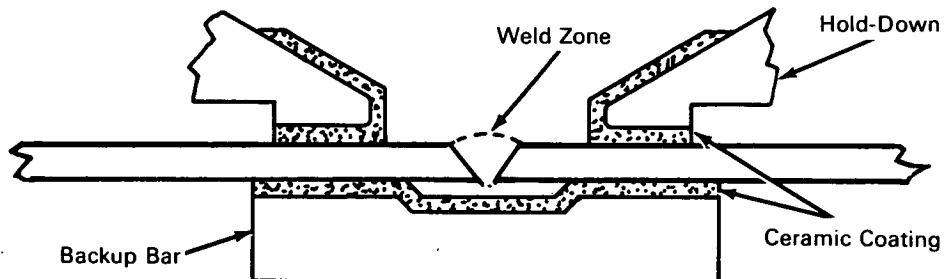


# NASA TECH BRIEF



This NASA Tech Brief is issued by the Technology Utilization Division to acquaint industry with the technical content of an innovation derived from the space program.

## Insulated Weld Tooling Permits Uniform, High-Quality Weld



**The problem:** Because of intermittent or discontinuous contact with the workpieces, metal tooling can cause hot and cold spots in the weld. This results in an irregular weld both as to bead and penetration and creates a weld of varying strength.

**The solution:** Coating the tooling holding faces with a layer of ceramic material.

**How it's done:** This technique involves spraying the backup bars and clamping tools with a commercially available ceramic material to prevent heat transfer. A uniform coating is applied to all surfaces contacting the parts to be welded.

### Notes:

1. Tests showed weld strengths using insulated weld tooling versus weld strengths using conventional weld tooling to be at a ratio of 3 to 2.

2. Cost of applying the ceramic coating is negligible considering that it can be used on inexpensive materials that need not be machined to close tolerances.
3. For further information about this innovation inquiries may be directed to:

Technology Utilization Officer  
Manned Spacecraft Center  
P. O. Box 1537  
Houston, Texas, 77001  
Reference: B64-10058

**Patent status:** NASA encourages commercial use of this innovation. No patent action is contemplated.

Source: North American Aviation, Inc. under contract to Manned Spacecraft Center (MSC-42)